

UNITED STATES DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
EUGENE DISTRICT

ENVIRONMENTAL ASSESSMENT NO. OR090-EA-02-26  
Badger One Regeneration Harvest

## I. INTRODUCTION

This Environmental Assessment (EA) will address a proposed regeneration harvest within the Wildcat Watershed. The Wildcat Watershed is located in Lane County, northwest of the city of Eugene and contains the community of Walton. The watershed lies at the east-central headwaters of the Siuslaw River Basin within the Coast Range Province. The proposed project area is located in Section 35, Township 17 South, Range 7 West, Willamette Meridian, Lane County, Oregon, within the General Forest Management Area (GFMA) of the Matrix land use allocation (LUA) (see attached map of the proposed project area). The regeneration harvest would occur in the Matrix (GFMA) only.

The watershed contains approximately 34,902 acres of which the Bureau of Land Management (BLM) manages approximately 13,990 acres or about 40 percent. The pattern of the current landscape in the Wildcat Watershed is largely influenced by the checkerboard ownership pattern. Streams would be protected consistent with the Eugene District RMP/ROD and in accordance with the Aquatic Conservation Strategy. The proposed project would remove approximately 1.0 MMBF from approximately 27 acres of regeneration harvest.

### A. MANAGEMENT OBJECTIVES AND GOALS FOR LAND WITHIN THE MATRIX (GFMA)

Matrix lands are those Federal lands outside of areas identified in the Record of Decision (ROD) for the FSEIS with special restrictions because of other resource values. The following are the primary goals and objectives of the Matrix (GFMA and Connectivity) land use allocation (*U. S. Bureau of Land Management, Record of Decision and Resource Management Plan, June 1995*):

- ▶ Produce a sustainable supply of timber and other forest commodities to provide jobs and to contribute to community stability.
- ▶ Provide connectivity (along with other allocations such as riparian reserves) between Late-Successional Reserves.
- ▶ Provide habitat for a variety of organisms associated with both late-successional and younger forests.
- ▶ Provide important ecological functions, such as dispersal of organisms, carryover of some species from one stand to the next, and maintenance of ecologically valuable structural components, such as down logs, snags, and large trees.
- ▶ Provide early-successional habitat.

### B. PURPOSE AND NEED FOR ACTION

The purpose of the action within the Matrix (GFMA) is to provide forest product commodities to the public. The proposed regeneration harvest of 27 acres of an upland Douglas fir stand would help attain this goal. The need for the action in the Matrix (GFMA) is established in the "Eugene District Record of Decision and Resource Management Plan," June 1995 (RMP), which directs

that regeneration harvest be conducted in the Matrix to provide forest product commodities and a sustainable supply of timber.

### **C. CONFORMANCE**

This Environmental Assessment (EA) is tiered to and in conformance with the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl and the Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl (ROD), April 1994, and the Eugene Record of Decision and Resource Management Plan, June 1995 (Eugene District ROD/RMP) as amended by the Record of Decision for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines, USDA Forest Service and USDI Bureau of Land Management, January, 2001. Alternatives described in this EA are in conformance with the Aquatic Conservation Strategy Objectives (page B-11 and the Standards and Guidelines for Riparian Reserves found on pages C-31 to C-38) of the ROD.

Watershed analysis has been completed for the Wildcat Watershed. The proposed action would maintain riparian conditions by protecting present structural features of the riparian currently present in the vicinity. This treatment is consistent with ACS Objectives (ROD pages B-11 to B-13).

## **II. PROPOSED ACTION AND ALTERNATIVES**

This section describes the Proposed Action and Alternatives developed through the interdisciplinary team (ID Team) review process. The Proposed Action and Alternatives consider forest management activities, including: regeneration harvest, road construction, road improvement and road decommissioning, and site preparation and tree planting, in an approximately 27 acre forested area within the Matrix, General Forest Management Area (GFMA) land use allocation. No actions would occur within Riparian Reserves with any of the alternatives.

### **A. ALTERNATIVE 1 - PROPOSED ACTION**

#### **Regeneration Harvest**

The Bureau of Land Management (BLM) proposes to regeneration harvest approximately 27 acres of timber totaling 1.0 MMBF within the Matrix (GFMA) land use allocation. No action would occur within Riparian Reserves. The project area is an upland predominantly Douglas-fir stand approximately 67-72 years old in T. 17 S., R. 07 W., Section 35, Willamette Meridian (W.M.) (see attached maps of the proposed treatment area). Yarding would be accomplished by cable or tractor. The Purchaser would have the option of using ground-based equipment (tractor) on slopes less than 35 percent. All yarding would be to designated or approved landings. (See design features 12-14 for additional cable and tractor yarding requirements.)

#### **Reserves**

Riparian Reserves - The height of one site-potential tree in the Wildcat Watershed has been determined to be approximately 210 feet slope distance. Riparian Reserves (widths of one site potential tree on either side of non-fish bearing streams, or two site potential trees on either side of fishbearing streams) would be managed in accordance with the standards and guidelines in the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl (ROD) (Appendix C, pp. 31-38) and the Eugene District RMP. No harvest would occur within the Riparian Reserve with the proposed action. Several unnamed non-fishbearing tributaries to Salt Creek are located near, but beyond one site potential tree from the project area. Although Salt Creek, approximately ½ mile downstream from the project area, has cutthroat trout present and suitable habitat for coho

salmon and steelhead, it is currently blocked to migratory fish by a downstream culvert near its junction with Wildcat Creek.

Survey and Manage Mollusk Reserves - Two Survey and Manage mollusk sites for the land snail, the Oregon Megomphix, would receive buffers to reduce edge effects and disturbance to this species. No disturbance would occur within the reserve areas. These two sites, however, fall within the great blue heron buffer described below. The heron buffer would not be subjected to any habitat modification, and, therefore, would provide protection for the Megomphix sites. All tree felling would occur directionally away from these reserve areas, and no yarding would occur through these reserve areas. Prescribed burning, site preparation, tree planting, or salvage logging would not occur in these reserve areas. These reserves are described in greater detail under Wildlife within *Section IV, Affected Environment* of the EA on page 10-11. (See design features 17 and 18.)

Great Blue Heron Rookery Reserve - During red tree vole surveys in the summer of 2000, a heron rookery was discovered within the proposed harvest unit. Initially, the site contained two to three nests, and in subsequent years, this number has increased to at least five. No habitat modification would occur within this reserve as described in design feature 18.

Survey and Manage and Protection Buffer Species - Botanical Reserves - All Survey and Manage plants (particularly bryophytes and fungi) that were found in the project area have since been removed from the Survey and Manage list, either in the Record of Decision for Amendments to the Survey and Manage, Protection Buffer, and Other Mitigation Measures Standards and Guidelines (2001), or in the subsequent Annual Species Review. No botanical reserves or buffers are necessary in this sale.

### **Green Tree Retention, Snags, and Coarse Woody Debris**

Six to eight green trees per acre would be left throughout the regeneration harvest area as required by the Eugene District RMP. These green retention trees would be retained to provide legacy trees to be carried into the next rotation and would eventually become snags or coarse woody debris (CWD). Additional green trees would be left to satisfy the needs of cavity nesters and the snag and down woody debris requirement. This action would retain a total of at least 10 green trees per acre to provide for future snags, down wood, and legacy trees. Coarse woody debris (CWD) would be provided for by retaining a minimum of 240 lineal feet/acre of material greater than or equal to 20 inches in diameter of Decay Class I and II, and all down material of advanced decay (Decay Class 3, 4 or 5). (See design features 6-11)

### **Site Preparation and Tree Planting**

Site-preparation and planting would occur within the treatment area upon completion of the proposed regeneration harvest (See design features 15 and 16.).

### **Road Access**

The regeneration harvest within the proposed action would require improvement of the existing Road Nos. 17-7-34 Segment B, totaling approximately 2800 feet (28 stations). The existing 17-7-35.1 road would remain dirt surfaced and would be maintained by the purchaser if used for logging. Spur A totaling approximately 1300 feet (13 stations) would be constructed with purchaser's option to rock. Spur A would be decommissioned by removing the rock (if added) and subsoiling after completion of the regeneration harvest. All roads within the sections were evaluated within the context of a districtwide transportation management plan to meet resource needs. See project design feature 5 for gated closure and barricading of roads accessing the project area. (See design features 3, 4 and 5.)

### **Project Design Features of the Proposed Action**

The following project design features would be implemented in conjunction with the proposed action. Project design features are operating procedures developed by the interdisciplinary team to avoid or reduce environmental impacts.

#### Noxious Weeds and Non-natives

1. In order to slow the spread of noxious weeds, all yarding and road construction equipment including excavator would be cleaned prior to its arrival on Bureau of Land Management land.

#### Riparian Reserves

2. All streams are located outside the unit boundaries; consequently, no reserves would be required.

#### Roads

3. The existing rocky Road Nos. 17-7-34 Segment B would be improved to SN-16 width standards with resurfacing to allow for winter logging and prevent sedimentation.

4. The current 17-7-35.1 road would remain dirt surfaced to be maintained by the purchaser if used for logging. Spur A would be new construction with purchaser's option to rock. Spur A would be decommissioned by removal of the rock (if added) and subsoiling after completion of the regeneration harvest.

5. The 17-7-34 Segment B road is currently gated at its junction with Highway 126 by Roseburg Forest Products. This gate is needed to reduce disturbance to elk, reduce the movement of noxious weeds by vehicle traffic, and to protect Badger Mountain radio tower and equipment from vandalism.

#### Green Tree Retention, Snags, and Coarse Woody Debris

6. Coarse woody debris (CWD) would be provided by retaining a minimum of 240 lineal feet of material/acre greater than or equal to 20 inches in diameter of Decay Class I and II. For the purpose of long term productivity and maintenance of biological diversity, retain all down material of advanced decay (Decay Class 3, 4 or 5) for CWD.

7. Six to eight green trees per acre of size and species typical of the stand would be retained to provide legacy trees to be carried into the next rotation and would eventually become snags or CWD.

8. Existing snags in the harvest area were found to be below the minimum RMP/ROD standards to meet primary cavity nesting bird needs. Snags would need to be created to attain the RMP/ROD guidelines of meeting 40% primary cavity nester requirements. In this unit, approximately 1.7 additional green trees per acre at least 15" D.B.H. would be retained. All existing snags not posing a safety hazard would be reserved in this unit. Where snags create a hazard, they would be cut and left on site for CWD.

9. All legacy (trees with old growth characteristics) trees 28" and greater, Pacific yew, Western redcedar, and hardwoods would be retained for tree diversity, and as important hosts for diversity of bryophyte and lichen species, as well as likely fungal associated diversity.

10. In summary, total retention trees for design feature numbers 7, 8 and 9 above would provide at least 10 green leaf trees per acre for future snags and legacy trees.

11. Plus trees 1674, 1675, 1676, 1677, and 1678 (genetically select trees) would be reserved. Tree numbers 1671, 1672, 1673 would be cut due to needed road improvements and an existing power line right-of-way in the project area.

#### Yarding

12. Yarding would be done from newly constructed roads and existing roads with cable or tractor equipment. All yarding would be to designated or approved landings.

13. Cable yarding - One end suspension of logs would be required during cable yarding, and intermediate supports would be required where necessary to attain the required suspension.

14. Tractor yarding - Tractor skid trails would be limited to slopes less than 35 percent. Tractor yarding would occur during periods of low soil moisture (generally less than 25% soil moisture). All tractor skid trails would be predesignated and approved by an authorized officer, and would occupy less than 10% of the tractor logged area. Skid trails used in harvesting would be water barred and subsoiled with a self-drafting winged subsoiler to minimize soil compaction and maintain long term soil productivity.

#### Site Preparation and Tree Planting

15. Radio and microwave installations up-slope to the north of the project area are a resource that warrant fire protection measures. These measures would be in the form of fuel hazards reduction. Excavator piling with burning would be used on this unit on slopes less than 40%. Swamper burning would occur on slopes over 40%, with the purchaser's option to handpile, cover, and burn. No piling would take place within any leave patches or other identified sensitive areas. Ten percent of the debris piles would be left unburned to provide wildlife habitat. The actual treatment methods required, and areas treated, would be determined after harvest. Fire hazard reduction and site prep would be accomplished in a manner that would minimize soil disturbance and minimize litter and coarse woody debris consumption.

16. Regeneration treatment areas would be planted with Douglas-fir and minor conifer species as available at a density of approximately 400 trees per acres. Stock type would be determined after harvest.

#### Survey and Manage Reserves - Mollusk

17. Survey and Manage reserves (approximately 0.5 - 0.8 acre in size) would be placed around the two designated locations of *Megomphix hemphilli*.

#### Great Blue Heron Rookery Reserve

18. The heron rookery previously described would be buffered by a 0.25 mile reserve. No habitat modification would occur within this reserve, and no activity creating noise above local ambient levels would be allowed from February 15 through September 30 of any given year.

#### Survey and Manage and Protection Buffer Species Reserves - Botanical

19. No botanical reserves or buffers are necessary in this sale, as all species found here have been removed from the Survey and Manage list.

### **B. ALTERNATIVE 2 (NO ACTION)**

All timber harvest activities would be deferred, and no management activities described under the other alternatives would occur at this time. Future management actions for a variety of resource needs may be proposed within the project area at a later date.

### **C. ALTERNATIVE 3 (No New Road Construction - Spur A)**

This alternative would remove an estimated 0.25 MMBF from approximately 20 acres of regeneration harvest from an area, as shown on the EA map. Resources would not vary by Alternative and are addressed in the "Affected Environment section of the EA". All other project design features would be similar to those proposed for Alternative 1.

### **D. OTHER ALTERNATIVES CONSIDERED**

An alternative previously considered included an 87 acre regeneration harvest. The discovery of the heron rookery mentioned above, required a 0.25 mile radius buffer. Because no management within this buffer is allowed, the acreage in this alternative was reduced by approximately 60 acres.

### III. AFFECTED ENVIRONMENT

This section will describe key components of the affected environment. The plants and animals in the project area do not differ significantly from those discussed in the Eugene District Final Resource Management Plan/Environmental Impact Statement (RMP EIS, 1994) (Chapter 3).

The Wildcat Watershed lies at the east central headwaters of the Siuslaw River Basin. The Wildcat Watershed contains approximately 34,902 acres. The current landscape in the Wildcat Watershed is largely influenced by the checkerboard ownership pattern. BLM manages approximately 13,990 acres, or 40% of the watershed; Forest industry companies manage 41%; State of Oregon manages 14%; and other private owners manage 5%. (*Wildcat Watershed Analysis, 1999*).

Approximately 46 percent of the BLM managed lands within the watershed are designated as Matrix (GFMA). Approximately 42 percent of these matrix lands are designated as Riparian Reserve. (*Wildcat Watershed Analysis, 1999*).

#### Vegetation

BLM administered lands within the watershed are comprised of the following approximate forested acres and percentages by vegetation class (*Based on Forest Operations Inventory (FOI) stand data 1998*):

◀ 0 year age class	160 acres	1.1%
◀ 10 year age class	740 acres	5.3%
◀ 20 year age class	661 acres	4.7%
◀ 30 year age class	1,081 acres	7.7%
◀ 40 year age class	1,333 acres	9.5%
◀ 50 year age class	1,267 acres	9.0%
◀ 60 year age class	5,971 acres	42.6%
◀ 70 year age class	1,248 acres	8.9%
◀ 80 year age class	73 acres	0.1%
◀ 100 year age class	71 acres	0.1%
◀ 150 year age class	132 acres	0.9%
◀ 180 year age class	120 acres	0.9%
◀ 200 year age class	1,040 acres	7.4%

Approximately 10 percent of the Federal (BLM) forested acres within the watershed are currently in a late-successional ( $\geq 80$  years of age) condition of which 10 percent is located in LSR or Riparian Reserves (*Based on Forest Operations Inventory (FOI) stand data, 2002*).

#### Stand Description

The proposed treatment area within the GFMA (approximately 27 acres) is comprised of a uniform second growth Douglas fir stand approximately 67-72 years old. Seventeen acres in the west portion of the proposed project area were commercially thinned from approximately 1984 to 1987. The current overstory stand density is approximately 100-110 trees per acre (TPA). Tree species diversity is low with only occasional bigleaf maple, western redcedar, and golden chinquapin (generally overtopped) within the Douglas-fir stand. A few areas within the stand contain many small western hemlocks. Plant communities include: Western hemlock/salal-Cascade Oregon grape-sword fern at higher elevations, grading down into Western hemlock/ocean spray-hazelnut/salal-

Oregon grape. There are occasional patches of twin flower accompanied by a rich herbaceous groundcover.

There are some large decaying logs important to bryophyte richness and moderate quantities of small woody debris. Very few tall snags are found, but numerous large, short snags with char are present. There are some residual large Douglas-fir with fire scars present.

## **Botanical Resources**

### Special Status and Survey and Manage Plant Species

All vascular surveys were completed during the spring and summer of 1997 and 1998. No federally listed Threatened or Endangered, Special Status, or Survey and Manage plant species were located within the project area of all alternatives. All botanical surveys have been completed.

Surveys for *Ulota megalospora*, a Protection Buffer moss species, were conducted during the same time frame. *Ulota megalospora* was found in five locations within the survey area. One site of *Sarcosoma mexicana*, a Survey and Manage Component 3 and Protection Buffer fungus species and one site of *Otidea onotica*, a Protection Buffer forest floor fungal species were found incidental to other surveys. *Helvella compressa*, a Survey and Manage Component 1 and 3 forest floor fungi, was also found at two locations within the survey area incidental to other surveys. These species were removed from Survey and Manage in the Record of Decision for Amendment to the Survey and Manage, Protection Buffer, and Other Mitigation Measures Standards and Guidelines (2001), or in the subsequent Annual Species Review (June 2002).

The following is a summary of former Survey and Manage species found by alternative.

#### Alternative 1 - 9 sites - (2 sites within the treatment area and seven sites in other reserves):

- ◀ *Ulota megalospora*, a moss, was found in four locations within the Proposed Action treatment area. Three of these sites fall within, and would be protected by, the heron rookery reserve.
- ◀ *Sarcosoma mexicana*, a fungus, was found at one location within the Proposed Action treatment area. This site also would be protected by the heron reserve.
- ◀ *Otidea onotica*, a forest floor fungus species was found in one location within the Proposed Action treatment area, and within the heron reserve. This site would be protected within the heron reserve.
- ◀ *Helvella compressa*, a forest floor fungus, was found at two locations within the Proposed Action, treatment area. One site falls within the heron reserve, while the remaining one is within the proposed harvest area.

#### Alternative 3 - 2 sites in the treatment area

- ◀ *Ulota megalospora*, a moss found in one location within the Alternative 3 treatment area.
- ◀ *Helvella compressa* was found at one location within the Alternative 3 treatment area.

### Noxious Weeds and Non-native Plant Species

An old skid-road through the upper section of the proposed project area has provided a vector for non-native weeds from the main road system (17-7-34) including thistle, foxglove, tansy ragwort, and St. John's wort. These weeds are scattered in the project area along an extensive network of old skid roads. Only a few scattered Scot's broom plants are located along the main roadway within the project area. These were pulled to control the spread of this species. There is a large patch of Scot's broom close to the beginning of the 17-7-34 road where it leaves Highway 126. This patch was treated with an herbicide application by private land owners during the spring of 1998. A smaller patch of Scot's broom occurs on BLM land near the 17-7-34 road to the Badger Mountain

radio tower along the north boundary of the project area. St. John's Wort occurs all along the main access roads to the project area with no signs of bio-control beetles.

## **Soils**

The predominant soils in the proposed treatment area are Klickitat. The Klickitat soil series consists of deep, reddish brown, loamy-skeletal soils. They are found on ridges and steep smooth or dissected slopes in mountainous topography at elevations of 500 - 4,000 feet. The Klickitat soils are members of the loamy-skeletal, mixed, mesic family of *Typic Haplumbrepts*.

The proposed regeneration treatment area is classified as suitable commercial forest for timber production. There are no acres withdrawn for non-suitability for timber production in the treatment area.

## **Aquatics and Riparian Resources / Fisheries**

No streams are located within one potential site tree of the proposed unit boundary.

## **Wildlife**

### Threatened and Endangered Species

There are no activity centers for any terrestrial species listed or proposed under the Endangered Species Act within the project area. The treatment area is comprised of dispersal habitat for the northern spotted owl. The proposed treatment area is within the 1.5 mile provincial home range of two northern spotted owl activity centers.

### Special Status Species

No sensitive amphibians were located during general wildlife surveys. No surveys specifically targeted for bats were conducted, however within the project area there were limited large snags that could provide refuge for bat species. No raptor nests were located within or near the proposed action area.

During the summer of 2000, a new great blue heron rookery was discovered within the proposed harvest unit. This nest area received a 0.25 mile buffer, within which no habitat modification would occur.

### Survey-and-Manage Species

Field surveys for the red tree vole were conducted in 2001. Two suspected nests were identified, but were later confirmed to be nests of other species. Consequently, no mitigation measures would be required for this species.

Protocol surveys were conducted and completed for Strategy-2-Mollusk Species during the fall of 1997 and the spring of 1998. Three mollusk species (12 sites) were found within the survey area for all alternatives; *Megomphix hemphilli* (a land snail) at 2 locations; *Prophysaon coeruleum* (a land slug) at 8 locations and *Prophysaon dubium* (a land slug) at 2 locations.

Since that time, both *P. coeruleum* and *P. dubium* were removed from the Survey and Manage list and no longer require management in this area.

Mitigation measures for *M. hemphilli* sites identified prior to October, 1999 are still required. The two sites described above fall within the heron rookery reserve and would be protected by that buffer.

### Big game

Black-tailed deer and elk occur in the project area. The proposed project area is being used by deer and elk for forage, hiding cover, and to a minor extent, thermal cover. Adjacent clear-cuts are used for foraging by both deer and elk. There is a lack of large standing or down trees that could provide denning sites for black bears. However, the project area and adjacent lands could be used by transitory or foraging bears that may exist in the area.



#### Neotropical migrants

Species preferring mid-successional coniferous stands and edge habitat, such as the olive-sided flycatcher, would be expected to occur in the project area.

#### **Snags / down Woody Debris / Fuels**

There are few natural snags observed overall, all in the later decay classes, and little coarse woody debris present. There are some large decaying logs important to bryophyte richness and moderate quantities of small woody debris. Very few tall snags are found, but numerous large, short snags with char are present. Radio and microwave installations to the north and up-slope from the project area are a resource that warrant fire protection measures. These measures would be in the form of fuel hazards reduction. The pre-harvest fuel loading in the proposed regeneration harvest is approximately 12-13 tons per acre.

#### **Cultural Resources**

A cultural resource inventory of the proposed project area has not been completed. Past pre-project inventories in the lands administered by the Bureau of Land Management within the Coast Range Physiographic Province have not resulted in the discovery of historic properties, therefore no cultural resources are expected to be affected. The guidelines of the Memorandum of Understanding (MOU) between the Bureau of Land Management and the Oregon State Historic Preservation Officer (December 13, 1994) makes the conclusion "that the chances of finding important historic properties in the area are so minimal such that further cultural resource survey prior to project implementation does not justify the continued expenditure of federal funds in the effort". The MOU does set forth procedures covering post-project cultural resource surveys which would be implemented.

#### **Visual Resources**

The project area is classified as Visual Resource Management Class IV, which allows for moderate levels of change to the characteristic landscape. Management activities may dominate the view and be the major focus of viewer attention. A regeneration harvest in this area would not exceed this level of change (Eugene District ROD/RMP, June 1995; pages 75-78).

#### **Recreation Resources**

The proposed project area is not within a Special Recreation Management Area (SRMA) and has no Rural Interface issues or Wild and Scenic River (WSR) issues.

## **IV. DIRECT AND INDIRECT EFFECTS**

### **A. UNAFFECTED RESOURCES**

The following resources are either not present or would not be affected by the proposed action or any of the alternatives: Areas of Critical Environmental Concern, prime or unique farm lands, flood plains, Native American religious concerns, solid or hazardous wastes, wetlands /riparian zones, Wild and Scenic Rivers, Wilderness, and low income or minority populations.

**Cultural Resources** are not expected to be affected by the proposed action or any of the alternatives.

**Recreation and Visual Resources** would not be affected by the proposed action or any of the alternatives. These resources will not be addressed further in the analysis.

**Air Quality:** Burning activities, if required for site preparation, would be consistent with Oregon Smoke Management Regulations. The proposed burning would be of very short duration and would have no local short or long-term impacts on air quality beyond those discussed in the RMP EIS (Chapter 3, pp. 14-20) and (Chapter 4, pp. 10-14). All burning would

meet the State Implementation Plan for smoke management and the National Ambient Air Quality Standards set forth in the Clean Air Act. This resource will not be addressed further in the analysis. The proposed project area is approximately 6 miles west of the Willamette Designated Area (DA).

## **B. DIRECT AND INDIRECT EFFECTS OF ALTERNATIVE 1- PROPOSED ACTION**

### **Vegetation**

The proposed action (regeneration harvest) would remove most of the existing trees within the unit and would establish an early seral stage forest with occasional mature trees, snags, and coarse woody debris. Green retention trees (green trees left within the regeneration harvest unit) and reserved snags would provide vegetative diversity and a legacy to be carried on into the next rotation. In the first decade following harvest, the area would be dominated by sprouting hardwoods, shrubs, forbs, and planted conifer saplings. Species diversity would be high in this stage. Conifers would develop slowly at first but gradually become dominant. During the 2nd decade the canopies of the planted conifers would close resulting in a dense conifer stand of primarily Douglas-fir. Species diversity would decrease during this time. As the stand ages (age 46-95 yrs.), the over story canopy would begin to open with an increase in forbs and shrubs. Species diversity would remain relatively low but would slowly increase.

The untreated Riparian Reserve would protect riparian terrestrial and aquatic resources described in the existing conditions. Within the Riparian Reserve, the long term development of mature and late-successional forests and their associated species would occur slowly through natural disturbances and forest succession over time. The herbs, shrubs, and non-vascular plants found in the Riparian Reserves would remain undisturbed.

### **Botanical Resources**

The proposed action would have no effect upon federally listed threatened or endangered plants, BLM sensitive plants, or known locations of Survey and Manage plants including lichens, bryophytes and fungi. None of these categories of plants are known from the project area.

The proposed action would result in removal of much of the overstory, changing the microclimate for plants and fungi, increasing light and wind intensities, and decreasing soil moisture and relative humidities. The removal of overstory trees would have long term impacts on those species that form mycorrhizal or epiphytic relationships with overstory trees. Road building and yarding would result in soil disturbance and would increase the likelihood of non-native and noxious species entering or increasing in the unit. These impacts could affect native species, including the formerly listed Survey and Manage species found in the area. Design features addressing road construction, cleaning of equipment, yarding, and site preparation methods along with reserves are incorporated within the proposed action to mitigate these effects.

## **Soils**

The proposed action and associated management practices would not cause soil compaction capable of impairing overall stand growth, long term productivity or the hydrologic behavior of the treatment area. Sufficient litter, logging debris and down logs would be retained to maintain soil organic material, soil organisms and nutrient levels. There are no slope stability concerns within the treatment area. Designating skid trails, restricting tractor yarding to dry seasons and gentler slopes (less than 35% slope), and subsoiling skid trails would keep overall productivity losses within the Eugene District ROD/RMP standard of 2 percent or less.

## **Aquatic and Riparian Resources / Fisheries**

There are currently no proposed or listed fish species in or near the project area.

### Water Quality, In-Stream Structure and Stream Function

The neighboring untreated Riparian Reserve would protect streambanks, provide shade, and would contribute to maintaining current water quality, water temperature, and conditions of riparian and aquatic functions. This would include tempering of stream and riparian microclimates from edge effects, retaining slope stability and the associated protection from stream sedimentation, and maintaining litter inputs to streams and riparian areas. These effects would contribute to the protection of water quality for downstream fisheries within Salt Creek. The development of a source of large trees for future large in-stream structure would occur more slowly in some areas of the Riparian Reserve without density management as the existing trees grow, compete for growing space, slow in diameter growth, and begin to self-thin naturally.

### Rain on Snow Events and Peak Flows

In general the rain on snow (ROS) zone is considered to be between 1150 feet and 4000 feet for the west coast. Carlson (1994) did an analysis using local records for the lands in the eastern portion of the Eugene district. Carlson found the peak ROS zone to be from 2130 to 2810 feet in elevation. Below 1500 feet he found almost no impact from the ROS effect. The project area ranges in elevation from 1400 to 1700 feet in elevation. There is a chance that there could be an increase in flows from a ROS event during the time this stand is returning to hydrologic maturity, but it is not very likely. Peak stream flows are discussed further under Roads and Stream Sediment below.

### Roads and Stream Sediment

There would be no stream crossings, and no drainage network extensions due to new road construction and road improvement within Alternative 1. The regeneration harvest within the proposed action would require improvement of the existing Road No. 17-7-34 Segment B, totaling approximately 2800 feet (28 stations); and the new construction of Spur A totaling approximately 1300 feet (13 stations) with purchaser's option to rock. This spur road would be decommissioned by removal of rock (if added) and subsoiling after the proposed regeneration harvest is completed. Gating and barricading of roads at the completion of harvest would decrease or limit use on approximately 9.8 miles of currently existing road. All proposed road construction and road improvements within the project area would have no potential to deliver flow or sediment to stream channels or impact aquatic resources in the short or long term due to their distance from the stream channels. There would be no increase in the drainage density from road construction, therefore there would be no increase in peak flows due to roads. No short or long-term contribution of sediment would occur with the implementation of the proposed action and its project design features.

## **Wildlife**

The proposed regeneration harvest is within the provincial home radius of two known spotted owl site centers. Although no suitable nesting habitat for the spotted owl is located within the proposed harvest unit, dispersal habitat within the area would be reduced. An adequate amount of this habitat, however, would remain (9,879 acres or 71% of federal lands within the Wildcat Watershed) in the vicinity after harvest.

Other special status species sites known to occur within the proposed unit (great blue herons and the Oregon Megomphix) would be protected by the previously mentioned buffers.

Immediately after the proposed treatment, the value of hiding and thermal cover for deer and elk would be eliminated. However, forage would increase in the newly harvested unit, and after approximately 10-15 years, would provide escape cover for these species. As the stand matures, the quality of hiding, thermal and optimal cover would increase as the canopy closes and develops multiple layers.

Species preferring early successional coniferous stands and edge habitat, such as the dark-eyed junco and tree swallow, would be expected to occupy this stand after treatment. As the stand matures, species more associated with later seral stages are expected to occupy this stand. Such species include the olive-sided flycatcher for mid seral stands and the hermit warbler in more mature forests.

## **Snags / Down Woody Debris / Fuels**

Herbaceous, fungal, and bryophyte diversity would be maintained by retention of snags and existing down logs within the treatment area. The increase in large down woody material in the regeneration harvest area, along with the retention of existing down logs and snags, would provide a number of ecosystem functions, including habitat for many species, moisture retention, nutrient retention and cycling. These effects would contribute to long term site productivity (Design features 6, 7 and 8). The non-harvested areas in Alternative 1 would have down wood effects similar to the no-action Alternative 2, except there may be some increased exposure to wind for residual trees along the edges of the harvest unit, causing an increased potential for some windthrow of trees in these areas. This would create additional down wood in these edge areas.

In the proposed regeneration harvest areas, fuel loading would initially increase from an approximate average of 12.9 tons per acre to a post harvest level of approximately 28.9 tons per acre. To facilitate planting and reforestation, the increased fuel loading would be reduced in the regeneration harvest area by means of excavator piling/handpiling, covering, and burning. Emissions as a result of this proposed action would be an estimated five tons of particulate matter less than 2.5 microns in diameter and 6.2 tons of particulate matter less than 10 microns in diameter for 20 acres of excavator piling and three acres of hand piling.

## **Social-Economic**

The regeneration harvest would provide commodities to the public. The proposed action would support Eugene District harvest levels for Fiscal Year 2003 by harvesting approximately 1.0 MMBF. Timber would be supplied for the benefit of the economy, and timber receipts would benefit the County and services provided to communities.

## **C. DIRECT AND INDIRECT EFFECTS OF ALTERNATIVE 2 (NO ACTION)**

### **Vegetation**

The no action alternative would have no immediate direct effects to the existing forest vegetation and would allow continued stand development. By not regeneration harvesting the proposed project area within the Matrix (GFMA) land use allocation, the present stands would

continue to function and grow older. Due to their location within the Matrix (GFMA) land use allocation, these units would likely be regeneration harvested at a later date.

The untreated forest within the Riparian Reserve, would develop slowly into mature and late-successional forest as described in Alternative 1.

### **Botanical Resources**

The "No Action" Alternative 2 would have no direct effect on botanical resources. The no action alternative would allow for the continuation of a mid-seral forest condition within the upland matrix with its associated botanical species.

### **Soils**

The "No Action" Alternative would have no direct effect on soil resources.

### **Aquatic and Riparian Resources / Fisheries**

The "No Action" Alternative would have no direct or indirect effects to the riparian resource. The neighboring untreated Riparian Reserve would protect streambanks, provide shade, and would contribute to maintaining current water quality, water temperature, and conditions of riparian and aquatic functions.

### **Wildlife**

The "no action" alternative would not modify dispersal habitat for the northern spotted owl either in the upland Matrix or riparian area. The long term development of mature and late-successional forests and their associated benefits to late-successional dependent species would occur slowly through natural disturbances and forest succession over time. Species preferring mid-successional coniferous forests and edge habitat, such as the olive sided flycatcher, would be expected to continue to occupy the upland project area until the stand is regeneration harvested. As the Riparian Reserve stand matures, species more associated with later seral stages, such as the marbled murrelet, are expected to occupy this stand.

### **Snags / Down Woody Debris / Fuels**

The contribution of down wood and the development of future large snags and down wood would be entirely dependent on natural disturbances and suppression mortality that would occur slowly over time. Fuel loading would increase with the increase in down wood from smaller trees due to natural disturbances and suppression mortality.

### **Social-Economic**

Commodities provided to the public through regeneration harvest of the proposed project area would not occur. Timber to benefit the economy and timber receipts that would benefit the County would not be realized unless an alternative harvest area is provided. Alternative areas may have environmental effects that exceed those of this proposal.

## **D. DIRECT AND INDIRECT EFFECTS OF ALTERNATIVE 3**

This alternative would remove an estimated 0.55 MMBF from approximately 14 acres of regeneration harvest from an area that was commercial thinned from approximately 1984-1987. This alternative would require approximately 2,800 feet of road improvement to the 17-7-34B road as shown on the EA map. There would be no new road construction. Survey and Manage and Protection Buffer species requirements would be the same as in Alternative 1 and are addressed in the "Affected Environment section of the EA". All other project design features would be similar to those proposed for Alternative 1.

### **Vegetation**

The direct and indirect effects within the upland matrix area to be harvested would be similar to those forest and vegetation effects described in the Proposed Action, Alternative 1, except there

would be approximately 13 fewer acres of regeneration harvest in the upland, with this alternative affecting less forest and vegetation. The forest and vegetation in those areas of the upland Matrix not treated would develop similar to the No-action Alternative.

### **Botanical Resources**

Alternative 3 would have similar, but less impact overall than Alternative 1 to botanical resources, due to less area harvested in the upland Matrix.

### **Soils**

Alternative 3 and associated management practices would not cause soil compaction capable of impairing overall stand growth, long term productivity, or the hydrologic behavior of the treatment area. Sufficient litter, logging debris, and down logs would be retained to maintain soil organic material, soil organisms, and nutrient levels. There are no slope stability concerns within the treatment area. Alternative 3 would have similar but less effects to the soil than Alternative 1 in the upland Matrix due to less acres harvested.

### **Aquatic and Riparian Resources / Fisheries**

There are currently no proposed or listed fish species in the project area. The nearby riparian areas would not fall within one potential site tree of this proposed harvest unit and would not be affected. The effects of no treatment in the Riparian Reserves would be similar to Alternative 1.

#### In-Stream Structure and Stream Function

The riparian areas outside the proposed harvest unit would continue to function at current levels.

#### Rain on Snow Events and Peak Flows

As described in Alternative 1, there is a chance that there could be an increase in flows from a ROS event during the time this stand is returning to hydrologic maturity, but it is not very likely. In the event a rain on snow event did occur, the Alternative 3 regeneration harvest would have less of an effect on peak flows than the Alternative 1 regeneration harvest due to less acres treated. There would be no increases in the drainage density from new road construction, therefore there would be no increase in peak flows from roads similar to Alternative 1.

#### Roads and Stream Sediment

The direct and indirect effects due to roads with Alternative 3 would be similar to Alternative 1 since both alternatives would use approximately the same road system. Alternative 3 would have 1300 feet less road construction than Alternative 1. All proposed road construction and road improvements within the project area would have no potential to deliver flow or sediment to stream channels or impact aquatic resources in the short or long term. Alternative 3, like Alternatives 1 and 2, would not cause any short or long-term contribution of sediment to streams.

### **Wildlife**

The direct and indirect effects with Alternative 3 would be similar to Alternative 1, except there would be less of a reduction (14 acres total) of dispersal habitat.

### **Snags / Down Woody Debris / Fuels**

The harvest areas in Alternative 3 would have similar down wood and snag effects to the harvested areas described in Alternative 1. Herbaceous, fungal, and bryophyte diversity would be maintained by retention of snags and existing down logs, within the treatment area. The increase in large down woody material in the regeneration harvest area, along with the retention of existing down logs and snags, would provide a number of ecosystem functions, including habitat for many species, moisture retention, nutrient retention and cycling. These effects would contribute to long term site productivity. The non-harvested areas in Alternative 3 would have down wood effects similar to the no-action Alternative 2, except there may be some increased exposure to wind for residual trees along the edges of the harvest unit, causing an increased

potential for some windthrow of trees in these areas. This would create additional down wood in these edge areas.

With the Alternative 3 regeneration harvest, the present fuel loading would initially increase from an approximate average of 12.9 tons per acre to a post harvest level of approximately 28.9 tons per acre. To facilitate planting and reforestation, the increased fuel loading would be reduced in the regeneration harvest area by means of excavator piling/handpiling, covering, and burning. Alternative 3 would have less acres of harvest than Alternative 1, reducing the fuel-loading in those areas not harvested compared to Alternative 1.

Emissions as a result of this proposed action would be an estimated 2.9 tons of particulate matter less than 2.5 microns in diameter and 3.6 tons of particulate matter less than 10 microns in diameter for 12 acres of excavator piling and one acre of hand piling.

### **Social-Economic**

The Alternative 3 regeneration harvest would provide commodities to the public. The Alternative 3 action would support the Eugene District harvest levels for Fiscal Year 2003 by harvesting approximately 0.55 MMBF. Timber would be supplied for the benefit of the economy, and timber receipts would benefit the County and services provided to communities.

## **V. CUMULATIVE EFFECTS**

### **A. CUMULATIVE EFFECTS OF ALTERNATIVE 1- PROPOSED ACTION**

This analysis incorporates the analysis of cumulative effects in the *USDA Forest Service and USDI Bureau of Land Management Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl, February 1994, (Chapter 3 & 4)* and in the *Eugene District Proposed RMP / EIS November, 1994 (Chapter 4)*. These documents analyze most cumulative effects of timber harvest and other related management activities. None of the alternatives in this proposed action would have cumulative effects on resources beyond those effects analyzed in the above documents. The following section supplements those analyses, providing site-specific information and analysis particular to the alternatives considered here.

### **Vegetation**

The current vegetation pattern within the Wildcat Watershed has been described in the existing environment. The Wildcat watershed contains approximately 34,902 acres. Approximately 13,990 acres (40 percent) of the Wildcat Watershed are managed by the BLM. The current landscape in the Wildcat watershed is largely influenced by the checkerboard ownership pattern.

The proposed Badger One timber sale would contribute to an increase in early seral habitat (approximately 27 acres) within the BLM Matrix land use allocation of the watershed; however, with the implementation of the Northwest Forest Plan, there would be an increase in mature and old forest habitat within the watershed over time as the LSR and Riparian Reserves mature and develop. Approximately 74 percent of the BLM ownership within the watershed is being managed toward a late-successional condition. Approximately 29 percent of the forests in the watershed are being managed toward a late-successional condition. (*Wildcat Watershed Analysis, 1999*).

Within the Wildcat Watershed, BLM has developed several timber sales since the implementation of the Northwest Forest Plan. BLM sold the No-Bul timber sale (89 acres of regeneration harvest) in 1996. D-Line thinning (93 acres) was sold in 1997 and Bulmer Creek Thinning (93 acres) was sold in 1995. D-Line thinning is located within the Matrix LUA of both the Wolf Creek and Wildcat Creek Watersheds. The No-Bul timber sale and the Bulmer Creek Thinning were both located within the Matrix LUA of the Wildcat Watershed.

Future planned sales within the Wildcat Watershed, in addition to this proposed action, include the Nelson Way Timber Sale, which includes approximately 146 acres of thinning, and Rusty Nel timber sale containing approximately 150 acres of regeneration harvest within the Matrix (GFMA) land use allocation of the Watershed; both are proposed to be sold in FY 2003.

### **Botanical Resources**

The Proposed Action, Alternative 1, would have no cumulative effect upon federally listed threatened, endangered or Sensitive plants. Although mature forest would be removed, the Riparian Reserves and LSR across the watershed should contribute to the viability of Survey and Manage plant species throughout the watershed. These species would be managed in accordance with the District management strategy, incorporating adaptive management as more information becomes known.

### **Soils**

The proposed action and associated management practices would not cumulatively impair overall stand growth, long term productivity, or impact aquatic resources.

### **Aquatic and Riparian Resources / Fisheries**

With the proposed action, ongoing riparian processes in nearby streams within the Wildcat Creek Watershed would continue to develop as they have over the long term.

### **Wildlife**

Locally, the proposed action would contribute to a reduction in northern spotted owl dispersal habitat. Within the context of the landscape, a network of Late-successional Reserves (LSRs) and Riparian Reserves have been designated to maintain and enhance habitat for late-successional forest-dependent species, including the northern spotted owl. With the implementation of the Northwest Forest Plan, there would be an increase in mature and old forest habitat within the watershed over time as stands within the LSRs and Riparian Reserves mature and develop. This network of LSRs and Riparian Reserves would enhance dispersal habitat and help sustain an intermixing population of owls. (Refer to the vegetation section of the cumulative analysis for the percent of the watershed being managed toward a late-successional forest condition). No impacts are expected to occur to the marbled murrelet or its habitat as the proposed treatment area does not currently provide suitable habitat for this species.

### **Snags/ Down Woody Material/ Fuels**

The proposed action would contribute to the maintenance of snag and down wood habitat levels within the watershed over the long term (Design features 6, 7 and 8). The maintenance of large down woody material within the watershed (LSRs and Riparian Reserves), along with the retention of existing down logs and snags, would provide a number of ecosystem functions, including habitat for many species, moisture retention, nutrient retention and cycling. These effects would contribute to the cumulative long term productivity of the watershed.

Fuels reduction operations in the commercial forest setting are standard practices during post-harvest site preparation. Emissions as a result of this proposed action would contribute short term increased particulate levels in the vicinity.

### **Social-Economic**

This proposed action would have a cumulative impact of providing commodities to the public over time while maintaining a sustainable supply of timber. Timber harvest creates economic activity and benefits, and timber receipts benefit the County and programs provided by the County.

## **B. CUMULATIVE EFFECTS OF ALTERNATIVE NO. 2 - NO ACTION**

### **Vegetation**



The no action alternative would have no immediate direct cumulative effects to the existing forest vegetation and would allow continued stand development. By not regeneration harvesting the proposed project area within the Matrix (GFMA) land use allocation, the present stands would continue to function and grow older. Due to their location within the Matrix land use allocation, these units would likely be regeneration harvested at a later date. Within the Riparian Reserve, long term development of mature and late-successional forests and their associated species would occur slowly through natural disturbances and forest succession.

### **Botanical Resources**

The No-action alternative would have no cumulative effect upon federally listed Threatened, Endangered, Sensitive or Survey and Manage plants.

### **Soils**

The “No Action” Alternative would have no cumulative impacts to soils affecting overall stand growth, long term productivity, or aquatic resources.

### **Aquatic and Riparian Resources / Fisheries**

The “No-Action” Alternative would have no effect to the cumulative process of riparian recovery in nearby streams within the Wildcat Creek Watershed. Ongoing riparian processes in nearby streams within the Wildcat Creek Watershed would continue to develop as they have over the long term.

### **Wildlife**

The “No Action” Alternative would not modify dispersal habitat for the northern spotted owl either in the upland Matrix or Riparian Reserve. The forested area would continue to contribute cumulatively to dispersal habitat within the watershed and across the landscape until such a time as it receives a regeneration harvest within the Matrix LUA. Within the Riparian Reserve, the long term development of mature and late-successional forest would occur slowly through natural disturbances and forest succession, thus contributing to a cumulative increase in late-successional forest habitat and connectivity of such habitat across the watershed. Wildlife species associated with the current habitat conditions would persist under the present stand conditions but would see changes dependent upon future stand characteristics, disturbances, and type of management over time as described in the direct and indirect affects.

Species preferring mid-successional coniferous forests and edge habitat, such as the olive sided flycatcher, would be expected to continue to occupy the upland project area until the stand is regeneration harvested. As the Riparian Reserve stand matures, species more associated with later seral stages are expected to occupy this stand. The mollusk populations and heron rookery are expected to continue their presence in the long term within the project area with the “no action” alternative.

### **Snags/ Down Woody Material/ Fuels**

The contribution of down wood and the development of future large snags and down wood would be entirely dependent on natural disturbances (e.g. wind) and suppression mortality that would occur slowly over time. LSR and Riparian Reserves would contribute to a cumulative increase in snags, down wood, and fuel loading across the landscape, as the forest within these reserves age and move through succession.

Since there would be no burning of slash as a result of the No Action alternative, no increased particulate loading is expected.

### **Social-economic**

The "No Action" Alternative would have a cumulative effect of providing a smaller stream of commodities to the public over time. Timber to benefit the economy, and timber receipts that would benefit the County, would decrease.

### **C. CUMULATIVE EFFECTS OF ALTERNATIVE 3**

The cumulative effects of Alternative 3 would be similar to those cumulative effects described in the Proposed Action, Alternative 1, except Alternative 3 would provide a smaller treatment area (13 acres less regeneration harvest) with a corresponding decrease in commodities provided to the public. Timber to benefit the economy, and timber receipts that would benefit the County, would be less than those provided by Alternative 1.

## **VI. EFFECTS ON AQUATIC CONSERVATION STRATEGY (ACS) OBJECTIVES**

### **PROJECT AREA**

The proposed regeneration harvest project, Badger One, occurs in the upland General Forest Management Area (GFMA) of the Matrix land use allocation in the Wildcat Watershed. Watershed analysis has been completed for the Wildcat Watershed. The Wildcat Watershed is not a key watershed. The proposed action and alternatives would maintain and restore riparian conditions by protecting present structural features of the riparian currently present.

The proposed treatment area is approximately 27 acres. The project area is comprised of a uniform second growth Douglas-fir stand approximately 67-72 years old. The west and northeast portions of the proposed project area were commercially thinned from approximately 1984 to 1987. The current over story stand density is approximately 100-110 trees per acre (TPA). Tree species diversity is low with only occasional bigleaf maple, western redcedar, and chinquapin oak (generally overtopped) within the Douglas-fir stand. A few areas within the stand contain many small western hemlocks.

The untreated Riparian Reserve would protect streambanks and provide shade, and would contribute to maintaining current water quality, water temperature, and conditions of riparian and aquatic functions. This would include tempering of stream and riparian microclimates from edge effects, retaining slope stability and the associated protection from stream sedimentation, and maintaining litter inputs to streams and riparian areas. These effects would contribute to the protection of water quality for downstream fisheries within Salt Creek and the water quality necessary to support healthy riparian, aquatic, and wetland ecosystems.

### **ACS OBJECTIVE 1**

***Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted.***

All alternatives addressed in this EA would contribute to the cumulative process of riparian recovery within the Wildcat Creek Watershed over the long term by maintaining untreated Riparian Reserves on the non fish-bearing, upper headwater tributaries of Salt Creek approximately 210 feet each side of the stream.

There are currently no proposed or listed fish species in the immediate project area. An upper tributary of Salt Creek flowing through the east portion of the project area (protected by untreated Riparian Reserves) has a moderate gradient with rapids, riffles, and glides, with moderate to high amounts of logs, woody debris, silt, sand, and bedrock. This upper tributary contains falls with steep gradients at its lower reach making it impassible to fish. This same tributary enters Salt Creek approximately ½ mile farther downstream south to southwest of the proposed treatment area.

Although Salt Creek has cutthroat trout present and suitable habitat for coho, it is currently blocked to migratory fish by a downstream culvert near its junction with Wildcat Creek. Coho within the Coastal Coho Ecologically Significant Unit (ESU), currently listed as threatened, are found in Wildcat Creek over a mile downstream from the project area.

Although large conifer development would not be hastened, all alternatives meet this ACS objective by leaving all Riparian Reserves intact and fully buffered with no treatment. All alternatives would maintain or restore riparian conditions by protecting structural features of the riparian currently present. No actions, including road construction and harvesting, would occur within these Riparian Reserves.

All harvesting is consistent with the management guidelines of the Eugene District RMP concerning riparian connectivity, the 15% retention requirement for late-successional forests within the watershed, and terrestrial habitat requirements. All the alternatives leave the forested stands within the riparian areas intact, allowing the future development of mature and late-successional forest habitat over the long term within the Riparian Reserve. All the alternatives leave intact the current late-successional habitat (i.e.,  $\geq 80$  years) within the Wildcat Watershed. The development of late-successional habitat within the Riparian Reserves and Late-Successional Reserves within the watershed would maintain and restore the distribution, diversity and complexity of watershed and landscape-scale features, and would contribute to long term cumulative recovery of the riparian and aquatic conditions within the Wildcat Watershed.

## **ACS OBJECTIVE 2**

***Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.***

All alternatives addressed in this EA meet this ACS objective by leaving all Riparian Reserves intact and fully buffered with no treatment. The established Riparian Reserves within the project area would maintain the current quality of connectivity within and between watersheds, although large conifer development within the Riparian Reserve would not be hastened by silvicultural treatment. There are no fishbearing streams within the immediate project area. There are no fisheries refugia within the Wildcat Watershed. None of the alternatives would change the existing connectivity of stream patterns.

Road construction proposed within the alternatives occurs in the upland outside of the Riparian Reserves, maintaining the current connectivity for aquatic or riparian dependent species. Road construction of spur A would be temporary. Spur A would be purchaser's option to rock. This spur would be decommissioned by removal of rock (if added) and subsoiling after completion of the regeneration harvest.

## **ACS OBJECTIVE 3**

***Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.***

All alternatives addressed in the EA would maintain the current physical integrity of the aquatic system, including shorelines, banks, and bottom configurations by limiting all actions, including harvesting and road construction, to the upland outside of the Riparian Reserves. Directional felling of trees in the upland would occur away from the Riparian Reserves, preventing any downslope disturbance within the riparian area itself. The untreated Riparian Reserve would protect streambanks and upslope stability within the riparian area and would maintain current shaded channel conditions.

There are no slope stability concerns within the upland treatment area. All alternatives and their associated management practices would not cause soil compaction capable of impairing overall stand growth, long term productivity, or the hydrologic behavior of the upland treatment area outside of the Riparian Reserve. There would be no new stream crossings, and no drainage network extensions due to new road construction and road improvement within Alternatives 1 and 3. (Alternative 2 is the no-action alternative).

#### **ACS OBJECTIVE 4**

***Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.***

The untreated Riparian Reserve (approximately 210 feet each side of the upper non-fishbearing tributaries of Salt Creek) within all alternatives proposed would protect streambanks and provide shade, and would contribute to maintaining current water quality, water temperature, and conditions of riparian and aquatic functions in these streams. This would include tempering of stream and riparian microclimates from edge effects, retaining slope stability and the associated protection from stream sedimentation, and maintaining litter inputs to streams and riparian areas. These effects would contribute to the protection of water quality for downstream fisheries within Salt Creek approximately ½ mile from the proposed project area, and to the protection of water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. No short or long-term contribution of sediment would occur with the implementation of the proposed action or alternatives.

All proposed new road construction and road improvements would occur outside the Riparian Reserve and would have no potential to deliver flow or sediment to stream channels or impact aquatic resources in the short or long term. There would be no new stream crossings. There would be no increases in the drainage density from road construction, therefore there would be no increase in peak flows from roads.

## ACS OBJECTIVE 5

***Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.***

All alternatives addressed in this EA meet this ACS objective by leaving all Riparian Reserves intact and fully buffered with no treatment. The untreated Riparian Reserve would protect streambanks and side-slopes, retaining vegetation and slope stability and the associated protection from stream sedimentation. No short or long-term contribution of sediment would occur with the implementation of the proposed action or alternatives.

All proposed road construction and road improvements are within the upland outside of the Riparian Reserve and have no hydrologic connection to the stream network. There would be no new stream crossings. All proposed new road construction and road improvements would occur outside the Riparian Reserve and would have no potential to deliver flow or sediment to stream channels or impact aquatic resources in the short or long-term. All surface flows and related sediment from existing and new constructed roads within the project area would be routed and infiltrated into the adjacent heavily vegetated side slope soils within the upland.

All new road construction (Spur A) would be temporary with purchaser's option to rock. This spur would be decommissioned by removal of rock, if added, and subsoiling after completion of the regeneration harvest.

There are no slope stability concerns within the upland treatment area. All alternatives and their associated management practices would not cause soil compaction capable of impairing overall stand growth, long term productivity, or the hydrologic behavior of the upland treatment area. The existing 17-7-34 Segment B road in the upland would be rocked to allow for winter logging and to further prevent sediment concerns.

## ACS OBJECTIVE 6

***Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected.***

All alternatives addressed in this EA meet this ACS objective primarily by retaining untreated Riparian Reserves. The proposed regeneration harvest under Alternatives 1 and 3, would cause only a small increase in low flows, since the residual trees within the reserves and treatment area would use the increase in available water. There would be no detectable change in flows downstream from the project area. No short or long-term contribution of sediment would occur with the implementation of the proposed action or alternatives.

All proposed new road construction and road improvements would occur outside the Riparian Reserve and would have no potential to deliver flow or sediment to stream channels or impact aquatic resources in the short or long-term. There would be no new stream crossings. There would be no increases in the drainage density from road construction, therefore there would be no increase in peak flows due to roads. All surface flows and related sediment from existing and new constructed roads within the project area would be routed and infiltrated into the adjacent heavily vegetated side slope soils within the upland.

The project area ranges in elevation from 1400 to 1700 feet in elevation. An increase in flows related to a rain on snow (ROS) event within this elevation range of the Coast Range is not very likely.

## **ACS OBJECTIVE 7**

***Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.***

All streams adjacent to the treatment areas are small headwater streams lacking in flood plain development. All alternatives addressed in this EA meet this ACS objective by not altering existing patterns of floodplain inundation and water table elevation, as there would be no effects or negligible effects on existing flow patterns and stream channel conditions downstream from the project area.

## **ACS OBJECTIVE 8**

***Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.***

All alternatives addressed in this EA meet this ACS objective by maintaining untreated Riparian Reserves, thus maintaining existing plant communities. Habitat for riparian related species would not be changed. Riparian vegetation would continue to maintain shading and bank stability. All the alternatives leave the forested stands within the riparian areas intact allowing the future development of mature and late-successional forest habitat over the long term. The development of this late-successional habitat would contribute to long term cumulative recovery of the riparian and aquatic conditions within the Wildcat Watershed.

## **ACS OBJECTIVE 9**

***Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.***

All alternatives addressed in this EA meet this ACS objective by retaining an untreated Riparian Reserve (approximately 210 feet each side of the upper non-fishbearing tributaries of Salt Creek), thus enhancing connectivity and habitat conservation for organisms that are dependent on the transition zone between upland and riparian areas. The tributaries adjacent to the treatment area lack suitable fish habitat and are not accessible to anadromous nor resident salmonids. The untreated Riparian Reserve should provide adequate protection to riparian dependent plants and animals. All alternatives would keep the existing Riparian Reserve intact to develop into mature and late-successional habitat in the long term, improving travel and dispersal corridors for many terrestrial animals and plants, and contributing to a network of connectivity corridors among the Late-Successional Reserves within the watershed and between watersheds.

## **VII. CONSULTATION AND COORDINATION**

### **A. PROJECT DEVELOPMENT**

The proposed action and alternatives were developed and analyzed by the following interdisciplinary team of BLM specialists:

Karin Baitis	BLM Soil Scientist
Mark Stephen	BLM Forest Ecologist
Brett Jones	BLM Engineer
Dave Reed	BLM Fuels Specialist
Michael Southard	BLM Archaeologist
Phil Redlinger	BLM Silviculturist
Alan Corbin	BLM Timber Manager
D.V. Crannell	BLM T & E and Wildlife Biologist
Leo Poole	BLM Fisheries Biologist

Gary Wilkinson  
Douglas Goldenberg  
Saundra Miles  
Gary Hoppe  
Graham Armstrong

BLM ARD/GIS Specialist  
BLM Botanist  
BLM Recreation Planner - Visual Resources  
BLM Planning and Environmental Coordination  
BLM Hydrology

## **B. CONSULTATION**

### **United States Fish and Wildlife Service (USFWS)**

Pursuant to the Endangered Species Act, this proposed action is currently undergoing formal consultation with the U.S. Fish and Wildlife Service (Service). According to Eugene District's Biological Assessment for habitat modifying projects for fiscal year 2002, Badger One would "May Affect, but is Not Likely to Adversely Affect" the northern spotted owl due to loss of dispersal habitat within the unit. After treatment, there would still be approximately 71% of federal lands remaining in dispersal condition within the Wildcat Watershed. This proposal would have a "No Affect" on the marbled murrelet or other federally listed/proposed terrestrial species.

### **National Marine Fisheries Service (NMFS)**

Pursuant the Endangered Species Act, consultation was conducted with the National Marine Fisheries Service (NMFS) to evaluate the effects of the Proposed Action on coho salmon (*O. kisutch*) by applying the standards of Section 7(a)(2). A response in the form of a Letter of Concurrence was received on June 24, 1999. In the Letter of Concurrence, it was determined this action "May Affect, but is Not Likely to Adversely Affect" the coho salmon. The sale was designed to follow the guidance of the Eugene District Resource Management Plan which incorporates the ACS objectives within the Northwest Forest Plan, and to incorporate mitigation identified in the consultation on previous listed salmonids, as appropriate. Because the United States retains the right to reject any and all bids for any reason, the mere offering of the sale does not make any irreversible or irretrievable commitment of resources which have the effect of foreclosing the formulation or implementation of any reasonable and prudent alternative measures. All mitigation measures included in this letter would be followed.

### **Confederated Tribes**

The Bureau of Land Management, Coast Range Resource Area consulted with the Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians as part of the cultural inventory to be conducted in conjunction with the environmental analyses process for the Fiscal Year 1998 and 1999 proposed timber sale program. A letter was sent on September 24, 1997. No response was received.

The Bureau of Land Management, Coast Range Resource Area also consulted with the Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians on June 4, 1998 seeking cultural information as part of the Wildcat Watershed Analysis. A response was received on June 11, 1998 concerning cultural resources within the watershed.

## **VIII. REFERENCES**

Carlson, K. Beak Consultants Incorporated, 1994. Lower McKenzie Watershed Analysis. USDA, Forest Service and USDI, Bureau of Land Management. February 1994. *Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl.*

USDA, Forest Service and USDI, Bureau of Land Management. April 1994. *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl*.

USDA, Forest Service and USDI Bureau of Land Management. January 2001. Record of Decision for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines.

USDI, Bureau of Land Management. June 1995. *Eugene District Record of Decision and Resource Management Plan*. Eugene District Office, Eugene, Oregon.

USDI, Bureau of Land Management and Oregon State Historic Preservation Office. 1998. *Protocol Agreement*.

USDI, Bureau of Land Management. 1999. *Wildcat Watershed Analysis*. Eugene District Office.

## IX. COMMENTS & RESPONSES

The following section responds to comments received from the Oregon Natural Resources Council.

**Comment:** ONRC objects to regen harvest because the Coast Range is so far from the historic amount of old forest. Any further regen logging will move the Oregon Coast Range further from the historic range of variability of older forest which affects the viability of owls, Pacific salmon, and the entire ecosystem that depends on older forest cover. The Northwest Forest Plan is premised on managing within the HRV. The Northwest Forest Plan will be violated if the Coast Range is pushed farther from HRV.

**Response:** The Northwest Forest Plan and the Eugene District RMP, with which the proposed action and alternatives are consistent, provide a set of standards and guidelines for achieving old forest habitat across the landscape. This set of standards and guidelines provides a well defined network of Late-successional Reserves and Riparian Reserves to provide for old-growth habitat and water quality while also providing for a sustainable supply of timber and other forest commodities in the Matrix (GFMA). Approximately 74 percent of the BLM ownership within the Wildcat Watershed is currently being managed as Riparian Reserves or Late-successional Reserves, and is consequently, being managed toward a late-successional and old forest condition (*Wildcat Watershed Analysis*, 1999).

With the implementation of the Northwest Forest Plan, there would be an increase in mature and old forest habitat within the watershed over time as the LSR and Riparian Reserves mature and develop. Since approximately 74 percent of the federally managed forest lands within the watershed are being managed as Riparian Reserves and Late-successional Reserves and due to the number of acres in the 60 year and older age classes (8,655 acres or 62 percent of the federal ownership) within the watershed, the percentage of late-successional forest ( $\geq 80$  years old) is projected to greatly increase within the next 20 years as the forest matures.

The Badger One stands do not now qualify as old timber. The Badger One harvest will take place only in GFMA which is consistent with the Northwest Forest Plan and RMP/ROD. Neither LSR nor Riparian Reserve LUA's will be cut.

**Comment:** "In order to make the finding that a project or management action "meets" or "does not prevent attainment" of the Aquatic Conservation Strategy objectives, the analysis must include a description of the existing condition, a description of the range of natural variability of the important physical and biological components of a given watershed, and how the proposed project or management action maintains the existing condition or moves it within the range of natural variability. Management actions that do not maintain the existing condition or lead to improved conditions in the long term would not "meet" the intent of the Aquatic Conservation Strategy and thus, should not be implemented."

[ACS Objectives]



"1. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted." Northwest Forest Plan ROD pages B-9 to B-11.

**Response:** The proposed action and alternatives were thoroughly evaluated in light of all nine ACS objectives. This evaluation is presented on page(s) 18 - 22 of the EA. This evaluation shows that the Badger One Regeneration Harvest focuses on "meeting" and "not preventing attainment" of the ACS objectives and is consistent with the ROD direction.

**Comment:** The heron rookery is noted in the introduction to the EA, but the environmental analysis, including the wildlife analysis, fails to mention anything about the possible effects of logging on the herons. We would like to see this sale dropped or amended to become a thinning prescription in order to allow the heron rookery room to expand over time. The regen harvest may also lead to increases in heron nest predators. This was not analyzed in the EA.

Two owl home ranges will be adversely affected. This area already short of owl habitat because of past cutting on BLM land and also because the site is near a lot of private land as well as near the margin between the Willamette Valley bottom and the valley foothills.

**Response:** In order to comply with the Migratory Bird Treaty Act, as amended and Eugene District Resource Management Plan (USDI, 1993), the heron rookery has been protected by a 0.25 mile radius buffer in order to provide protection to nesting herons from adverse weather, human disturbance and predation. This is consistent with the RMP/ROD. No management activities will take place within this buffer. The size of this buffer is selected based on the best scientific information available regarding the habitat needs of this species.

As mentioned in the EA, there are two historic spotted owl sites within 1.5 miles of the proposed action. One site is located on non-federal lands to the south, while the second is located on a 160 acre Bureau parcel surrounded by non-federal ownership. Past owl surveys have not documented owl activity within the proposed harvest unit, nor does this unit contain suitable habitat for this species. The unit is, however, made up of dispersal habitat for this species. Consultation with the U.S. Fish and Wildlife Service concluded that this action "May Affect, but is Not Likely to Adversely Affect" this species due to removal of 27 acres of owl dispersal habitat in an area that would still contain an adequate amount of this habitat post harvest.

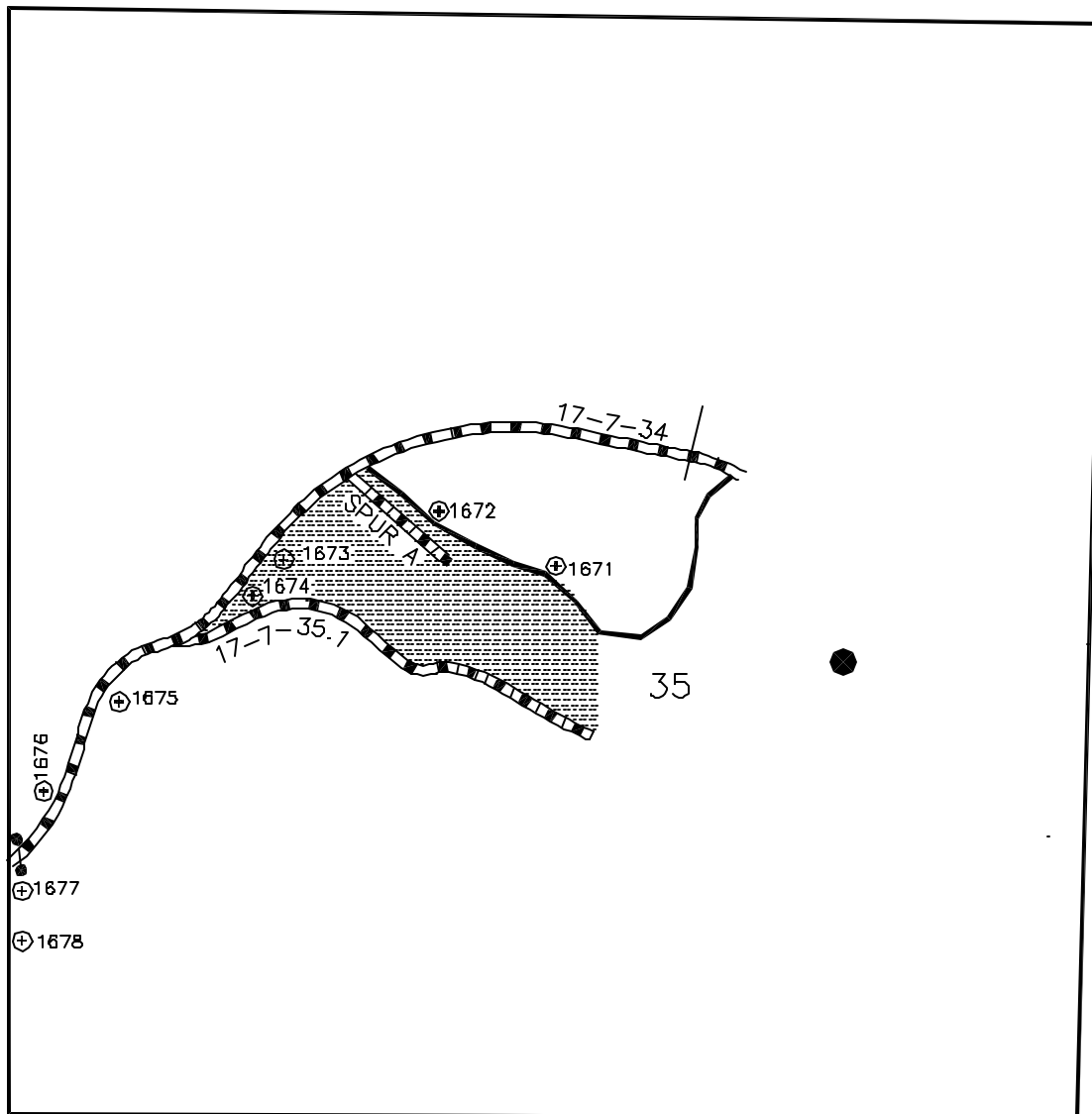
The comment also noted that this area is close to the Willamette Valley fringe. Since the Valley is devoid of spotted owl nesting habitat and serves as an obstacle for owl dispersal between the Coast Range and Cascades, locations where forests on the west and east sides of the Valley come close together are very important. Areas where these forests do come close are located to the south and east of the proposed project area and are made up of federal lands mainly in the LSR and Connectivity Land Use Allocation. As these forested lands in this vicinity mature, suitability for owl nesting and foraging will improve over time, enhancing the capability to support both resident and dispersing spotted owls. This area much better serves east/west owl dispersal and nesting than does the proposed action area.

**Comment:** The EA should have considered a thinning alternative. If a thinning alternative was properly analyzed we may not object.

**Response:** Silvicultural systems in the GFMA are designed to promote production of merchantable timber, while retaining some larger trees and snags and maintaining forest health and productivity. As described in the EA, this 67 -72 year old stand was already commercially thinned from 1984 to 1987. The current overstory stand density is approximately 100 -110 trees per acre(TPA). Another commercial thinning entry was not considered, since the stand was within the regeneration harvest age guidelines provided in the RMP.









UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
BADGER ALTERNATE ONE EA MAP

T. 17S. , R. 7W , SEC. 35 WILL. MER., EUGENE DISTRICT



SCALE: 1" = 1,000 FT.

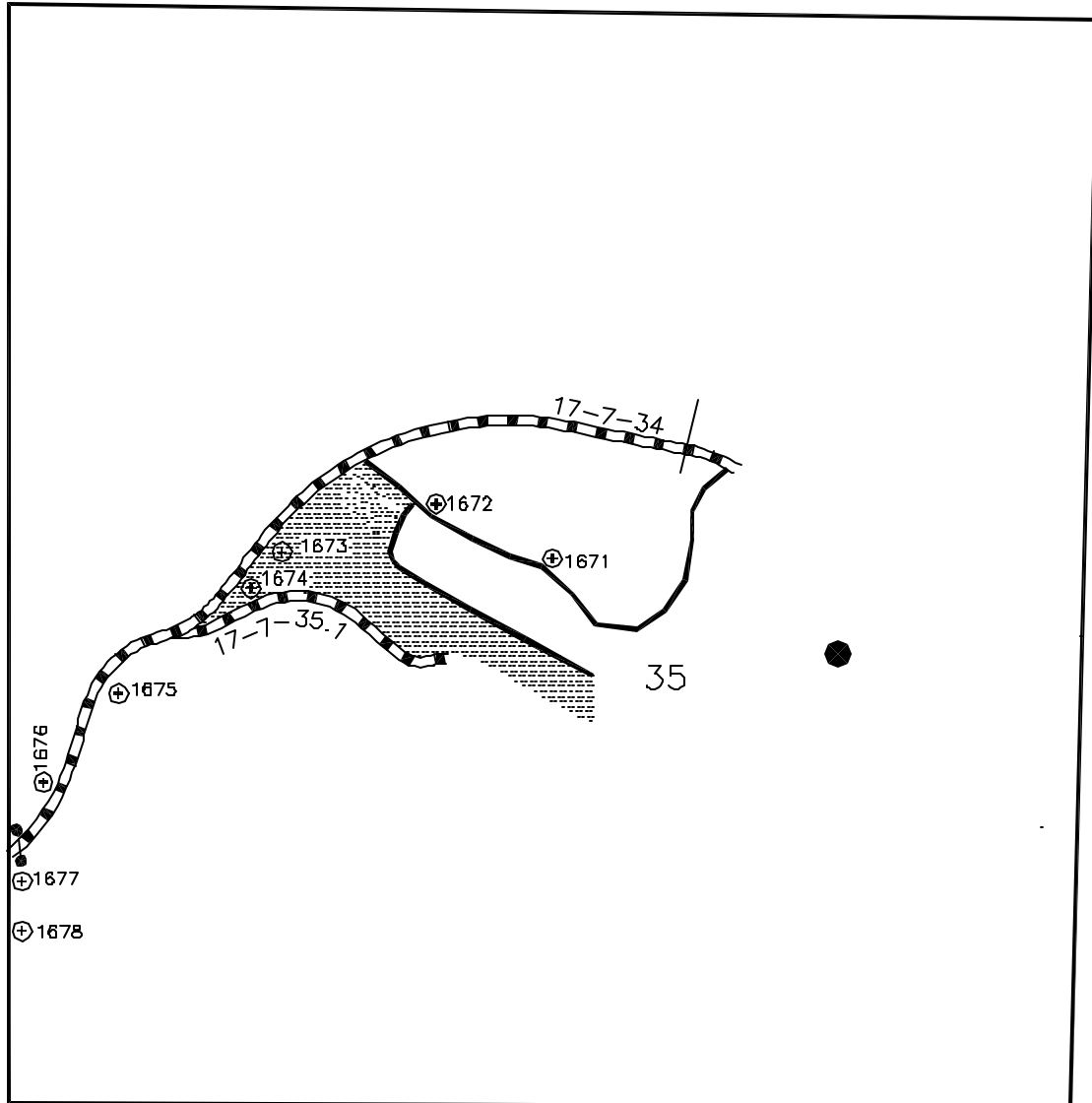
LEGEND

	TREATMENT AREA		ROAD TO BE CONSTRUCTED
	RESERVE AREA		ROAD TO BE IMPROVED
	PLUS TREES TO BE RESERVED #s 1671, 1672, 1673, 1674, 1675, 1676, 1677, & 1678		GATE INSTALLATION
			STREAMS
			HERRON TREE

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT









BADGER ALTERNATE THREE EA MAP

T. 17S. , R. 7W , SEC. 35 WILL. MER., EUGENE DISTRICT



SCALE: 1" = 1,000 FT.

LEGEND

	TREATMENT AREA		ROAD TO BE CONSTRUCTED
	RESERVE AREA		ROAD TO BE IMPROVED
	PLUS TREES TO BE RESERVED #s 1671, 1672, 1673, 1674, 1675, 1676, 1677, & 1678		GATE INSTALLATION
			STREAMS
			HERRON TREE